

REMARKS

By this amendment, claims 1-51 are pending, in which claims 1, 18, and 35 are currently amended.

The final Office Action mailed August 31, 2000 rejected claims 1, 2, 6, 7, 10-12, 16, 18, 19, 23, 24, 27-29, 33, 35, 36, 40, 41, and 44-46 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* (US 6,381,228) in view of *Montpetit* (US 6,366,761), claims 3, 4, 20, 21, 37, and 38 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and in further view of *Leung* (US 6,574,231), claims 5, 22, and 39 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and in further view of *Leung* and *Fan et al.* (US 6,424,622), claims 8, 9, 25, 26, 42, and 43 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and in further view of *Turner* (US 4,849,968), claims 13, 14, 30, 31, 47, and 48 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and in further view of *Charvillat* (US 5,315,586), claims 15, 32, and 49 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and in further view of *Haulin* (US 5,502,988), and claims 17, 34, and 51 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and in further view of *Filipiak et al.* (US 5,193,090). Additionally, claims 1, 18, and 35 were objected to for informalities.

In view of the claim amendment, Applicant submits that the objection to claims 1, 18, and 35 are overcome.

As amended, independent claims 1 and 35 recite "moving the bandwidth request from the one global queue to one of a plurality of local queues, the plurality of local queues corresponding to the plurality of channels, wherein the bandwidth request is moved based on loading of the channels." Independent claim 18 recites "a plurality of local queues coupled to the BCP, the plurality of local queues corresponding to the plurality of channels, one of the plurality of local queues storing the bandwidth request is moved from the one global queue based on loading of the channels."

By contrast, none of the applied references, alone or in combination, teaches the above feature, as explained below.

In support of its obviousness rejection over the combination of *Prieto, Jr. et al.* and *Montpetit*, the Office Action (on page 4), refers to col. 9, lines 46-55 of *Prieto, Jr. et al.* for a supposed teaching of "moving the bandwidth request from the one global queue to one of a plurality of local queues." The cited passage states the following (*Emphasis Added*):

As shown, some of the wholesalers 58 are backlogged with retailers 60 waiting for service by the PFQ scheduler. **The PFQ scheduler calculates cost functions based on subscription rate and bandwidth utilized in the past.** The resulting metric is used for determining a winner by sorting. The winner of the competition will herein be called the "highest priority." The highest priority wholesaler that includes the retailers 60 waiting for service is selected in a first stage, and the highest priority retailer 60 of the selected wholesaler 58 is determined in a second stage. An RGM message is generated by the MAC controller after a winner has been selected at service time.

At best, the above passage merely discloses that the packet fair queueing (PFQ) algorithm, as employed by the two stages in the hierarchical uplink fair scheduling (HUFS) algorithm, outputs a metric that is **based on subscription rate and bandwidth utilized in the past**. This is not a disclosure of "wherein the bandwidth request is moved **based on loading of the channels**."

The secondary reference of *Montpetit* is similarly devoid of this feature. *Montpetit* discloses the use of four levels of priority status, P1, P2, P3, and P4, and that "bandwidth for uplink transmission of a data packet to a servicing satellite overhead is allocated based on the data packet's assigned priority status" (col. 6, lines 56-58; see also, col. 5, lines 43-61).

Even assuming the two references were properly combined based on some teaching or suggestion in the references, and assuming the modifications proposed in the Office Action were justified by additional teachings or suggestions found in the references, even the combination does not render the claimed invention obvious. Specifically, none the references taken alone, or in combination, teaches or suggests "moving the bandwidth request from the one global queue to one of a plurality of local queues, the plurality of local queues corresponding to the plurality of channels, **wherein the bandwidth request is moved based on loading of the channels**."

In addition, the other references of *Leung, Fan et al., Charvillat, and Filipiak et al.*, which were applied for supposed teachings of the various dependent claims, fail to satisfy the above claim features.

Furthermore, Applicant respectfully submits that a *prima facie* case of obviousness has not been established, as it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d, 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). For example, *Prieto, Jr. et al.*, in col. 2, lines 36-47, recognizes the problem with controlling reservations from a central terrestrial location, such as a Network Operations Center (NOC), noting that wasteful trips to the satellite are required. Thus, the *Prieto, Jr. et al.* system provides, as an objective, an onboard demand assigned multiple access (DAMA) protocol for use in connection with a processing satellite communications network (col. 2, lines 61-65). In operation, the DAMA controller on the satellite receives a reservation query message (RQM) and buffers the requests into priority-class queues.

In stark contrast, the *Montpetit* system contemplates maintaining queues at a terrestrial location. For example, *Montpetit* discloses, in col. 7, lines 23-39, the following:

Once the data is organized in a satellite network data packet with an assigned priority status, the data packet is placed in a data packet send queue (block 106) to await uplink transmission to the servicing satellite overhead. In one embodiment of the invention, **the data packet send queue is maintained in the memory of a ground terminal** (e.g., ground terminal 21a, 21b, 21c or 21d) associated with the TSA originating the data transmission. Alternatively, **the data packet send queue is maintained in a memory by the TSA itself**. Preferably, separate data packet send queues are defined for each of the different priority status levels that may be assigned to a data packet. For example, FIG. 6 illustrates four data packet send queues 130, 132, 134, and 136 corresponding to the four priority status levels P1, P2, P3 and P4. A data packet is placed into the data packet send queue that corresponds to the data packet's assigned priority status.

Based on the above passage, it is clear that the *Montpetit* system employs a queuing mechanism at a terrestrial location. However, this notion of a terrestrial based

mechanism is taught away by *Prieto, Jr. et al.*, which utilizes an onboard mechanism. Thus, the proposed combination of *Prieto, Jr. et al.* and *Montpetit* is unsustainable.

Furthermore, the proposed modification to the *Prieto, Jr. et al.* system based on the teachings of *Montpetit* would render the *Prieto, Jr. et al.* system unfit for its intended purpose, in contravention of MPEP § 2143.01, which states: "If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)." It is not surprising that *Prieto, Jr. et al.* fails to disclose, and as acknowledged by the Office Action on page 4, that the claim feature of "each of the global queues corresponding to a data rate;" namely, there is no technical reason to employ such queues. With respect to its operation, *Prieto, Jr. et al.* discloses the following (col. 9, lines 24-37):

The basic HUFFS algorithm is divided into two stages, although any number of stages may be used to expand the service. **The first stage provides wholesale user selection and the second stage provides retail user selection.** Both stages employ a form of packet fair queuing (PFQ), such as the starting potential fair queuing (SPFQ) algorithm. The first and second stages are independent and unique for each uplink band. **The first stage queues are actually virtual queues storing the state of each wholesaler group and may be either backlogged or idle.** The second stage queue is a virtual queue storing fixed sized virtual packets representing a number of some quanta of uplink bandwidth desired by the retail user connection.

In view of the above description, there is no technical basis to modify the first stage queues to provide the priority status levels taught by *Montpetit*, it that the first stage queues store state information – i.e., "backlogged or idle." *Prieto, Jr. et al.* further discloses (col. 9, lines 57-65; FIG. 5) that the highest priority wholesaler 58 having a RQM is selected based on a measure of past service, the wholesaler's subscription rate, and its relation to other wholesalers by a PFQ scheduler 62. The PFQ can be any suitable packet fair queuing algorithm known in the art. An output of the scheduler 62 is the highest priority wholesaler 58 having a backlog of retailers 60 waiting for an RGM to be generated at the PFQ service time.

Therefore, the *Prieto, Jr. et al.* system does not rely on the first stage queues themselves for determining priority of the wholesalers, but the PFQ scheduler 62. The modification of the first stage queues to reflect priority levels would undermine the operation of the PFQ scheduler 62, as these queues would no longer contain necessary state information, thereby rendering the *Prieto, Jr. et al.* system unfit for its intended purpose.

Applicant further submits that, at the very least, the proposed modification would change the principle of operation of the *Prieto, Jr. et al.* system. Such modification is also contrary to settled law. MPEP § 2143.01 also stipulates that: "If the proposed modification or combination of the prior art would change the principle operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)." In this instance, by changing the first stage queues to the queues of *Montpetit*, the *Prieto, Jr. et al.* system would need to change, at minimum, its use of the PFQ scheduler 62. In fact, it appears that the PFQ scheduler 62 would not be needed at all if the queues already reflect a prioritization of the requests.

Accordingly, Applicant respectfully requests withdrawal of the obviousness rejections, as the combination of *Prieto, Jr. et al.* and *Montpetit* is improper.

The present application, as amended, therefore, overcomes the objections and rejections of record and is in condition for allowance. Favorable consideration is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (301) 601-7252 so that such issues may be resolved as expeditiously as possible. All correspondence should continue to be directed to our below-listed address.

Respectfully Submitted,



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